

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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PCT

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year)

14 JUN 2006

Applicant's or agent's file reference

FL-73 PCT 1

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US04/05242

International filing date (day/month/year)

20 February 2004 (20.02.2004)

Priority date (day/month/year)

24 February 2003 (24.02.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC: H04Q 7/00(2006.01);H04B 7/185(2006.01);H04B 1/00(2006.01) H04B 7/204(2006.01)

USPC: 455/522,13.4,68;370/318,319

Applicant

FLARION TECHNOLOGIES, INC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US

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Date of completion of this opinion

17 April 2006 (17.04.2006)

Authorized officer

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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PCT/US04/05242

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims 8-26, 29-32 YES

Claims 1-7, 27-28 and 33-35 NO

Inventive step (IS)

Claims 8-26, 29-32 YES

Claims 1-7, 27-28 and 33-35 NO

Industrial applicability (IA)

Claims 1-35 YES

Claims NONE NO

2. Citations and explanations:

Please See Continuation Sheet

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Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

The drawings are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or content thereof: In figure 2, element 211 is not mentioned in the specification. In figure 3, element 301 is not mentioned in the specification. In cell 921 of figure 9, replace the label "907" with "927". In cell 941 of figure 9, replace the label "917" with "947". In figure 16, element 1600 is not mentioned in the specification. In figure 17, elements 1704, 1706, 1708 and 1710 are not mentioned in the specification.

The description is objected to as containing the following defect(s) under PCT Rule 66.2(a)(iii) in the form or contents thereof: In line 23 of page 11, replace "provide" with "provided". In line 30 of page 13, replace "provide" with "provided". In line 10 of page 14, replace "Memory 1320" with "Memory 1308". In line 3 of page 15, replace "out at" with "out". In line 7 of page 17, replace "traffic 102" with "traffic 104". In line 9 of page 18, replace "axis 317" with "axis 301". In line 11 of page 26, replace "pilot tone 728" with "pilot tone 727". In line 22 of page 30, replace "S1 929" with "S1 925". In line 22 of page 33, replace "second S2" with "second S1". In line 9 of page 36, replace "determine" with "determined". Lines 20-22 of page 38 need revision. In line 27 of page 40, replace "1700" with "1750". In line 29 of page 42, replace "1816" with "1826". In line 30 of page 43, replace "is transmits" with "transmits". Lines 18-21 of page 44 need revision. In line 16 of page 45, replace "such a" with "such as".

Claims 8, 27 and 30 are objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: In line 1 of claim 8, the examiner respectfully suggests replacing "wherein further comprising" with "further comprising". In line 6 of claim 27, the examiner respectfully suggests replacing "first pilot" with "first pilot signal". In line 5 of claim 30, the examiner respectfully suggests replacing "second fifth" with "second, fifth".

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 24 and 25 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 24-25 are indefinite for the following reason(s):

Claim 24 recites the limitations "*said* second tone", "*said* third and fourth symbol times" and "*said* third pilot signal" in lines 2, 3 and 4, respectively. There is insufficient antecedent basis for these limitations in the claim. Claim 25 recites the limitations "*said* third tone", "*said* fifth and sixth symbol times", "*the* fifth pre-selected" and "*the* fifth and sixth pilots" in lines 2, 3, 5 and 5-6, respectively. There is insufficient antecedent basis for these limitations in the claim.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1-7, 27-28 and 33-35 lack novelty under PCT Article 33(2) as being anticipated by Baum et al. (US 5,867,478).

Consider claim 1, Baum et al. disclose a method of transmitting pilot tones in a multi-sector cell including at least a first sector and a second sector (Abstract, column 5 lines 54-63, element 300 of figure 3), the second sector being located adjacent said first sector (element 300 of figure 3), the method comprising: transmitting, using a first tone (frequency/sub-carrier), in said first sector during a first symbol time (frame/ baud interval) a first pilot signal (pilot code) having a first pre-selected transmission power (Column 9 line 37- column 10 line 57); and transmitting, using said first tone, in said second sector during a second symbol time, which overlaps said first symbol time, a second pilot signal having a second pre-selected transmission power which is different from said first pre-selected transmission power (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols).

Consider claim 2, Baum et al. disclose all the limitations as applied to claim 1 above and also disclose wherein the second pre-selected transmission power is zero, said second pilot being a NULL pilot signal (Column 9 lines 44-48).

Consider claim 3, Baum et al. disclose all the limitations as applied to claim 1 above and also disclose transmitting, using a second tone (frequency/sub-carrier), in said first sector during a third symbol time (frame/ baud interval) a third pilot signal (pilot code) having a third pre-selected transmission power; and transmitting, using said second tone, in said second sector during a fourth symbol time, which overlaps said third symbol time, a fourth pilot signal having a fourth pre-selected transmission power which is different from said third pre-selected transmission power (Column 9 line 37- column 10 line 57, figures 7-12, where Baum et al. disclose an orthogonal broadcast sequence including transmitting null baud/symbols).

Consider claims 4 and 5, Baum et al. disclose all the limitations as applied to claim 3 above and also disclose wherein said second pre-selected transmission power and said third preselected transmission power are the same (zero), said second and third pilot signals being NULL pilot signals (Column 9 lines 44-48).

Consider claims 6 and 7, Baum et al. disclose all the limitations as applied to claim 1 above and also disclose wherein said first and third symbol times are the same or do not overlap; and wherein said first and second tones are different or the same (Column 9 line 37- column 10 line 57, figures 7-12, where Baum et al. disclose several pilot codes transmitted by base unit during four baud intervals of a frame and different tones (pilot and data) are sometimes used).

Consider claim 27, Baum et al. disclose a method of transmitting pilot signals in a multi-sector cell, the multi-sector cell including at least first, second and third sectors, each of the first, second and third sectors being located adjacent at least one other one of said first, second and third sectors in said cell (Abstract, column 5 lines 54-63, element 300 of figure 3), the method comprising: transmitting during at least a portion of a first symbol time (frame/ baud interval): a first pilot signal (pilot code) on a first tone (frequency/sub-carrier) in the first sector using a first pre-selected transmission power (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols); a second pilot signal on the first tone in the second sector using a second pre-

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

selected transmission power which is different from said first pre-selected amount of transmission power (Column 9 line 37- column 10 line 57); and a third pilot signal on the first tone in the third sector using a third pre-selected amount of transmission power (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols).

Consider claim 28, Baum et al. disclose all the limitations as applied to claim 27 above and also disclose wherein the first and third pre-selected amounts of transmission power are non-zero and are the same (Column 9 line 37- column 10 line 57, figures 7-12, where Baum et al. disclose using a frequency reuse scheme and several pilot codes transmitted by base unit during four baud intervals of a frame).

Consider claim 33, Baum et al. disclose an apparatus for transmitting pilot tones in a multi-sector cell (Abstract, column 5 lines 54-63, element 300 of figure 3), the apparatus comprising: a transmitter (base unit); means for controlling said transmitter to transmit, using a first tone, in said first sector during a first symbol time a first pilot signal having a first pre-selected transmission power (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols); and means for controlling said transmitter to transmit, using said first tone, in said second sector during a second symbol time, which overlaps said first symbol time, a second pilot signal having a second pre-selected transmission power which is different from said first pre-selected transmission power (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols).

Consider claims 34 and 35, Baum et al. disclose all the limitations as applied to claim 33 and also disclose means for controlling said transmitter to transmit, using a second tone (frequency/sub-carrier), in said first sector during a third symbol time a third pilot signal having a third pre-selected transmission power (Column 9 line 37- column 10 line 57); and means for controlling said transmitter, using said second tone, in said second sector during a fourth symbol time, which overlaps said third symbol time, a fourth pilot signal having a fourth pre-selected transmission power which is different from said third pre-selected transmission power (Column 9 line 37- column 10 line 57, figures 7-12, where Baum et al. disclose several pilot codes transmitted by base unit during four baud intervals of a frame), wherein said second pre-selected transmission power and said third pre-selected transmission power are the same (Column 9 line 37- column 10 line 57, where Baum et al. disclose transmitting null baud/symbols).

Claims 8-26 and 29-32 meet the criteria for novelty and inventive step set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the combination/sequence of tones, transmission power, sectors and symbol time overlap as claimed in claims 8 (and depending claims), 22, 23 and 29 (and depending claims).

Claims 1-35 meet the criteria set out in PCT Article 33(4), and thus provide industrial applicability because the subject matter claimed can be made or used in the telecommunications industry for transmission power control.